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jc713 U.S. PTO
01/24/00

jc584 U.S. PTO
09/490061
01/24/00

Date: January 24, 2000
Docket No.: 0905-0226P-SP

Assistant Commissioner for Patents
Box PATENT APPLICATION
Washington, D.C. 20231

Sir:

Transmitted herewith for filing is the patent application of

Inventor(s): KAWAOKA, Yoshiki

For: IMAGE FILE APPARATUS AND METHOD

Enclosed are:

X A specification consisting of 22 pages

X 6 sheet(s) of Formal drawings

X An assignment of the invention

X Certified copy of Priority Document(s)

X Executed Declaration X Original ___ Photocopy

___ A verified statement to establish small entity status under 37 CFR 1.9 and 37 CFR 1.27

___ Preliminary Amendment

___ Information Disclosure Statement, PTO-1449 and reference(s)

___ Other _____

The filing fee has been calculated as shown below:

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MULTIPLE DEPENDENT CLAIM PRESENTED no			+260 = $	0.00	or	+130 = $	0.00
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Respectfully submitted,

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SPECIFICATION

TITLE OF THE INVENTION

IMAGE FILE APPARATUS AND METHOD

BACKGROUND OF THE INVENTION

Field of the Invention

This invention relates to an image file apparatus and method for reading out image files that have been recorded on a first recording medium and recording the read image files on a second recording medium.

Description of the Related Art

There are instances where when an image file that has been stored on a first recording medium is read out and recorded on a second recording medium, an image file having the same file name as that of the image file read out of the first recording medium has already been recorded on the second recording medium. It is necessary for image files and their file names to have one-to-one correspondence and different image files are not allowed to have the same file name. When an image file that has been read out of the first recording medium is recorded on the second recording medium, therefore, often the image file that has been read out of the first recording medium is written over the image file that has been recorded on the second recording medium.

If an image file that has been read out of the first recording medium is written over an image file that has been recorded on the second recording medium,

the image file already recorded on the second recording medium will be erased.

Likewise, when images are grouped by type to create a so-called "electronic album", two or more different images are not allowed to have the same file name.

Further, there are occasions where when an image file is read out of a first recording medium and the read image file is recorded on a second recording medium, the file name of the image file being recorded on the second recording medium is displayed. However, merely displaying the file name makes it difficult for the user to determine what kind of image the image file represents.

DISCLOSURE OF THE INVENTION

Accordingly, an object of the present invention is to so arrange it that when image files are read out of a first recording medium and stored on a second recording medium to create a so-called "electronic album", the image files stored on the second recording medium will not have duplicate file names.

Another object of the present invention is to so arrange it that when an image file is read out of a first recording medium and stored on a second recording medium, the user is notified reliably of the kind of image file that is being recorded on the second recording medium.

According to a first aspect of the present invention, the foregoing objects are attained by

providing an image file apparatus for reading out an image file that has been recorded on a first recording medium and recording this image file on a second recording medium, comprising: an image file readout unit for reading out an image file that has been recorded on the first recording medium; a file-name duplication discrimination unit (file-name duplication discrimination means) for determining whether a file name of the image file that has been read out by the image file readout unit and a file name of an image file that has been recorded on the second recording medium are duplicates; an image-file recording controller (image-file recording control means), which is responsive to a determination by the file-name duplication discrimination unit that the file names are duplicates, for changing the file name of the image file that has been read out of the first recording medium and recording this read image file on the second recording medium in such a manner that file names of image files that have been recorded on the second recording medium will not be duplicated; and a grouping unit (grouping means) for grouping image files, which have been recorded on the second recording medium by the image-file recording control unit, according to the types of images represented by the image files.

The first aspect of the present invention provides also a method suited the image file apparatus described above. Specifically, an image file method in an image

file apparatus for reading out an image file that has been recorded on a first recording medium and recording this image file on a second recording medium comprises the steps of: reading out an image file that has been recorded on the first recording medium; determining whether a file name of the image file that has been read out of the first recording medium and a file name of an image file that has been recorded on the second recording medium are duplicates; in response to a determination that the file names are duplicates, changing the file name of the image file that has been read out of the first recording medium and recording this read image file on the second recording medium in such a manner that file names of image files that have been recorded on the second recording medium will not be duplicated; and grouping image files, which have been recorded on the second recording medium, according to the types of images represented by the image files.

In accordance with the first aspect of the present invention, an image file is read out of the first recording medium. It is determined whether the file name of the image file that has been read out duplicates the file name of any image file that has already been recorded on the second recording medium. If file names are duplicates, the file name of the image file that has been read out of the first recording medium is changed so that it will not duplicate the file name of any image file that has been recorded on the second recording

medium. The image file having the changed file name is recorded on the second recording medium.

Since the file name of an image file read out of the first recording medium is changed before it is recorded on the second recording medium, image files having identical file names are prevented from being recorded on the second recording medium. Thus, since image files that have been recorded on the second recording medium will not be erased, it is also possible to prevent important files from being erased from the second recording medium inadvertently.

When image files that have been read out of the first recording medium are recorded on the second recording medium, they are grouped according to the types of images represented by the image files. This creates a so-called "electronic album".

Since different image files having the same file name can be prevented from being recorded on the second recording medium, it is possible to create an electronic album in which the images have been grouped appropriately.

The above-mentioned grouping may be performed by recording file names corresponding to respective ones of the groups on the second recording medium. File names belonging to respective ones of the groups can be displayed in a list on a group-by-group basis.

An image file apparatus according to a second aspect of the present invention comprises: an image

file readout unit for reading out an image file that has been recorded on a first recording medium; a recording controller for recording the image file, which has been read out by the image file readout unit, on a second recording medium; and an output unit for outputting an image file being recorded on the second recording medium by the recording controller.

The second aspect of the present invention provides also a method suited the image file apparatus described above. Specifically, an image file method according to the second aspect of the invention comprises the steps of: reading out an image file that has been recorded on a first recording medium; recording the read image file on a second recording medium; and outputting an image file being recorded on the second recording medium.

In accordance with the second aspect of the present invention, an image file that has been recorded on the first recording medium is read out and recorded on the second recording medium, and the image file being recorded on the second recording medium is output.

By applying an image file to, e.g., a display unit, the image represented by this image file is displayed. While verifying the image represented by the image file being recorded on the second recording medium, the user is capable of recording the image file on the second recording medium. This makes it possible to tell which image file is being recorded on the second recording medium.

Other features and advantages of the present invention will be apparent from the following description taken in conjunction with the accompanying drawings, in which like reference characters designate the same or similar parts throughout the figures thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram illustrating the electrical construction of an image file apparatus;

Fig. 2 shows the directory structures of memory cards and a large-capacity floppy disk;

Fig. 3 illustrates an album master table and an album management table;

Figs. 4 and 5 are flowcharts illustrating part of the processing procedure of the image file apparatus; and

Fig. 6 is a flowchart illustrating the procedure of processing for changing file name.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A preferred embodiment of the present invention will now be described with reference to the drawings.

Fig. 1 is a block diagram illustrating the electrical construction of an image file apparatus 1 according to an embodiment of the present invention.

The image file apparatus according to this embodiment reads out image files that have been stored on a memory card (a first recording medium) 21 and records the read image files on a large-capacity floppy

disk (FD) (a second recording medium) 23, thereby creating a so-called "electronic album".

The overall operation of the image file apparatus 1 is controlled by a CPU 2.

The image file apparatus 1 includes a PROM (programmable read-only memory) 3 in which an operating program has been stored, a memory 4 for temporarily storing image data (image files) and other data, and a compression/expansion engine 5 for compressing image data and expanding image data that has been compressed. The image file apparatus 1 further includes a memory-card controller 6 for reading out image files that have been recorded on a memory card 21 and recording image files on the memory card 21, a large-capacity controller 7 for reading out image files that have been recorded on the large-capacity floppy disk 23 and recording image files on the large-capacity floppy disk 23, a display/memory controller 8 for controlling the memory 4 and controlling display of images on a monitor display unit 10, and an operation-input interface 9 for accepting command input from a front panel 11.

Fig. 2 shows the directory structures of memory cards 21 and 22 and large-capacity floppy disk 23.

By inserting the first memory card 21 into a digital electronic still camera and taking the picture of a subject, a sub-directory "IMFIDX10" managed by a root directory "ROOT" is generated in the first memory card 21. An image file obtained by taking the picture

of the subject is managed by the sub-directory "IMFIDX10". (A path is generated by linking directories. In Fig. 2, image files from image file names "DSC00001.JPG" to "DSC00100.JPG" have been stored on the first memory card 21.) Similarly, image files having image file names "DSC00001.JPG" to "DSC00004.JPG" have been recorded on the second memory card 22.

When image files that have been recorded on the first memory card 21 and image files that have been recorded on the second memory card 22 are read out and recorded on the large-capacity floppy disk 23, a sub-directory "0100 FUJI" managed by a root directory "ROOT" is generated on the large-capacity floppy disk 23. The image files that have been read out of the first memory card 21 and the image files that have been read out of the second memory card 22 are managed by the sub-directory "0100 FUJI".

In this embodiment, the file names of image files are numbers. The file names of image files that have been recorded on the first memory card 21 and the file names of image files that have been recorded on the second memory card 22 include some that are identical ("DSC00001.JPG" to "DSC00004.JPG"). Different image files that have been recorded on the same recording medium are not allowed to have the same file names. Accordingly, before different image files are recorded on the large-capacity floppy disk 23, file names are changed in such a manner that the different image files

will not possess the same name.

In the example depicted in Fig. 2, image files that have been read out of the first memory card 21 are recorded on the large-capacity floppy disk 23 with the file names illustrated. The image files that have been read out of the second memory card 22 are recorded on the large-capacity floppy disk 23 upon having their file names changed to file names that follow the last file name of the image files that have been read out of the first memory card 21. More specifically, since image files having the file names "DSC00001.JPG" to "DSC00100.JPG" have been stored on the first memory card 21, the image files that have been recorded on the second memory card 22 have their file names "DSC00001.JPG" to "DSC00004.JPG" changed to file names "DSC00101.JPG" to "DSC00104.JPG", which start following the last file name "DSC00100.JPG" of the first memory card 21. The image files having the changed file names are recorded on the large-capacity floppy disk 23.

According to this embodiment, an electronic album is generated on the large-capacity floppy disk 23. Accordingly, an electronic album directory "ALBINFO", described later, is generated and managed by the root directory "ROOT". An album master table (directory name "HMALB.MST") and an album management table (directory name "UAL00001.ALB") are managed by the directory "ALBINFO" of the electronic album.

Fig. 3 illustrates an example of the album master

table and an example of album management tables.

The album master table includes an album master header and a data recording area.

The album master header stores management data regarding the album master table (data indicating that this table is the album master table, the addresses of data that has been recorded in the data recording area, etc.).

The data recording area stores the directory name of an album management table for each album (images that have been grouped as an album according to the type of images). For example, an album of a sporting event (an electronic album composed of image files representing images relating to a sporting event) is represented by the directory name "UAL00001.ALB", and an album of flowers (image files representing images relating to flowers) is represented by the directory name "UAL00002.ALB".

An album management table is generated for each directory name that has been recorded in the data recording area of the album master table. Each album management table includes an album information header and a data recording area.

The album information header stores management data regarding the album management table (data indicating that this table is the album management table, the addresses of file names that have been recorded in the data recording area, etc.).

The data recording area of the album management table stores the file names of the image files that constitute the album. Images represented by image files having file names that have been stored in the album management table having the directory name "UAL00001.ALB" relate to the sporting event. Images represented by image files having file names that have been stored in the album management table having the directory name "UAL00002.ALB" relate to flowers.

Figs. 4 and 5 are flowcharts for describing the procedure of processing image files in the image file apparatus 1. This processing creates an electronic album by reading out image files that have been recorded on the first memory card 21 and image files that have been recorded on the second memory card 22 and recording these image files in the large-capacity floppy disk 23. Fig. 6 is a flowchart illustrating the procedure of processing for changing file names.

The user of the image file apparatus 1 inserts the first memory card 21 and the large-capacity floppy disk 23 in the image file apparatus 1 (steps 31, 32). In response, an image prompting the user to input a storage-start command is displayed on the display screen of the monitor display unit 10 of image file apparatus 1 (step 33).

A signal indicative of the storage-start command enters the CPU 2 via the operation-input interface 9. The CPU 2 controls the memory-card controller 6 so that

an image file representing the first frame of an image is read from the image files that have been recorded on the first memory card 21 (step 34). The image file that has been read out of the first memory card 21 is stored in the memory 4 temporarily.

When the image file read out of the first memory card 21 is stored in the memory 4 temporarily, processing for changing the file name is executed (step 35).

According to this embodiment, the file names of image files that are recorded on the large-capacity floppy disk 23 are consecutive numbers. The final file name n (file number) of the image files that have been stored on the large-capacity floppy disk 23 is read out (step 51 of Fig. 6). The numeral obtained by incrementing the number n of the read out file by one becomes the new file number of the image file to be recorded on the large-capacity floppy disk 23 (step 52 in Fig. 6).

In an instance where an image file is recorded on the large-capacity floppy disk 23 for the first time, the large-capacity floppy disk 23 will be empty. The file name of the image file recorded on the large-capacity floppy disk 23 is changed in this case as well. Naturally, in a case where an image file is recorded on the large-capacity floppy disk 23 for the first time and, moreover, the file names of image files that have been recorded on the first memory card 21 have been

recorded on the disk in numerical order starting from DSC00001.JPG, the fact that the final file name n on the large-capacity floppy disk 23 will be 0 means that even though the processing of steps 51 and 52 is executed, image files will be recorded on the large-capacity floppy disk 23 under file names identical with those of the image files that have been read out of the first memory card 21.

When a file name is changed, control shifts to processing for creating an electronic album. First, the album master table is read out of the large-capacity floppy disk 23 that has been inserted into the image file apparatus 1. Album names that have been recorded in the data recording area of the album master table are read out and displayed in the form of a list on the display screen of the monitor display unit 10. The user confirms whether the albums displayed in the list contain an album corresponding to the image represented by the image file that the user is attempting to record on the large-capacity floppy disk 23 (step 36).

If a corresponding file does not exist, an album name is assigned anew from the front panel 11. The data representing this album name, together with the directory name corresponding to this album name, is stored in the album master table that has been recorded on the large-capacity floppy disk 23 by the large-capacity controller 7. Thus there is created an album management table managed by the directory of the new

album name (step 37). If a corresponding album management table already exists on the large-capacity floppy disk 23, then the processing of step 27 is skipped.

Using the front panel 11, the user of the image file apparatus 1 designates an image file name to be stored in the album management table (step 38). When the image file name is designated, the file name is stored in the corresponding album management table by the large-capacity controller 7 (step 39).

The image file having the image file name that has been changed is read out of the memory 4 by the display/memory controller 8 and is applied to the large-capacity controller 7. The latter records the image file on the large-capacity floppy disk 23 (step 40).

The image file that has been stored on the large-capacity floppy disk 23 is applied also to the compression/expansion engine 5 by the large-capacity controller 7. The image file, which has been compressed, is expanded by the compression/expansion engine 5 (step 41). The expanded image data is applied to the display/memory controller 8. The image represented by the image file being recorded on the large-capacity floppy disk 23 by the large-capacity controller 7 is displayed on the monitor display unit 10 (step 42). Thus the user is capable of determining what image is represented by the image file being recorded on the large-capacity floppy disk 23.

The processing of steps 34 to 42 is repeated until all image files that have been recorded on the first memory card 21 are recorded on the large-capacity floppy disk 23 (step 43).

If all image files that have been recorded on the first memory card 21 are recorded on the large-capacity floppy disk 23, next the second memory card 22 is inserted into the image file apparatus 1. Image files that have been recorded on the second memory card 22 are read out one frame at a time and each image file is recorded on the large-capacity floppy disk 23 upon changing its file name so that it will not duplicate an image file name that has been recorded on the large-capacity floppy disk 23.

If image files having file names from "DSC00001.JPG" to "DSC00100.JPG" have been recorded on the first memory card 21, all image files are recorded on the large-capacity floppy disk 23 under these file names just as cited, as described earlier. If image files having file names from "DSC00001.JPG" to "DSC00004.JPG" have been recorded on the second memory card 22, these image files are recorded on the large-capacity floppy disk 23 upon changing their file names in such a manner that they will continue from the file name (DSC00101.JPG) that follows the last file name (DSC00100.JPG) of the image file that has been recorded on the first memory card 21. Thus different image files are prevented from being recorded on the large-capacity

floppy disk 23 under the same file name. Since image files that have already been recorded on the large-capacity floppy disk 23 will not be overwritten, it is possible to prevent the accidental erasure of image file that have been stored on the large-capacity floppy disk 23.

If an electronic album is thus created, an album name is entered from the front panel 11. The album master table of the large-capacity floppy disk 23 is retrieved by the large-capacity controller 7 and the directory name corresponding to the entered album name is found. The album management table managed by the found directory name is searched and the file names that have been stored in the found album management table are read out. By using the large-capacity controller 7, the image files represented by the read file names are read out from the image files being managed by the directory "0100 FUJI". The images constituting the album are displayed successively on the display screen of the monitor display unit 10.

In the embodiment described above, image file names are numbers, but it goes without saying that the image file names are not limited to numbers. In a case where image file names are other than numbers, whether or not image files having file names identical with those of image files that have been read out of a memory card have been recorded on the large-capacity floppy disk 23 would be checked with regard to each individual file

name of the image files that have been recorded on the large-capacity floppy disk 23.

Further, even if file names are numbers, there will be instances where the final file name (number) that has been recorded on the large-capacity floppy disk 23 will not be the largest number. In such cases also all image file names that have been recorded on the large-capacity floppy disk 23 would be read out and changed to file numbers such that the file numbers of image files that are to be recorded on the large-capacity floppy disk 23 will not duplicate the file numbers of image files that have already been recorded on the large-capacity floppy disk 23. For example, the largest file number is found from among the file numbers of image files that have been stored on the large-capacity floppy disk 23 and the file name of an image file to be newly recorded on the large-capacity floppy disk 23 is changed in such a manner that the number that follows the largest number will become the new file number.

As many apparently widely different embodiments of the present invention can be made without departing from the spirit and scope thereof, it is to be understood that the invention is not limited to the specific embodiments thereof except as defined in the appended claims.

WHAT IS CLAIMED IS:

1. An image file apparatus for reading out an image file that has been recorded on a first recording medium and recording this image file on a second recording medium, comprising:

an image file readout unit for reading out an image file that has been recorded on the first recording medium;

a file-name duplication discrimination unit for determining whether a file name of the image file that has been read out by said image file readout unit and a file name of an image file that has been recorded on the second recording medium are duplicates;

an image-file recording controller, which is responsive to a determination by said file-name duplication discrimination unit that the file names are duplicates, for changing the file name of the image file that has been read out of the first recording medium and recording this read image file on the second recording medium in such a manner that file names of image files that have been recorded on the second recording medium will not be duplicated; and

a grouping unit for grouping image files, which have been recorded on the second recording medium by said image-file recording control unit, according to the types of images represented by the image files.

2. The apparatus according to claim 1, wherein said grouping unit causes a file name corresponding to each

group to be recorded on the second recording medium.

3. An image file apparatus comprising:

an image file readout unit for reading out an image file that has been recorded on a first recording medium;

a recording controller for recording the image file, which has been read out by said image file readout unit, on a second recording medium; and

an output unit for outputting an image file being recorded on the second recording medium by said recording controller.

4. The apparatus according to claim 3, wherein said output unit is a display device for displaying an image represented by an image file that has been recorded on the second recording medium.

5. An image file method in an image file apparatus for reading out an image file that has been recorded on a first recording medium and recording this image file on a second recording medium, comprising the steps of:

reading out an image file that has been recorded on the first recording medium;

determining whether a file name of the image file that has been read out of the first recording medium and a file name of an image file that has been recorded on the second recording medium are duplicates;

in response to a determination that the file names are duplicates, changing the file name of the image file that has been read out of the first recording medium and recording this read image file on the second recording

medium in such a manner that file names of image files that have been recorded on the second recording medium will not be duplicated; and

grouping image files, which have been recorded on the second recording medium by the image-file recording control unit, according to the types of images represented by the image files.

6. An image file method comprising the steps of:

reading out an image file that has been recorded on a first recording medium;

recording the read image file on a second recording medium; and

outputting an image file being recorded on the second recording medium.

ABSTRACT OF THE DISCLOSURE

When an electronic album is created, different images having identical file names are prevented from being recorded on a large-capacity floppy disk. Image files have been recorded on a memory card and on a large-capacity floppy disk in the order of file numbers. When an image file that has been recorded on the first memory card is recorded on the large-capacity floppy disk, the final file number on the large-capacity floppy disk is read out. The file number of the image file that has been read out of the first memory card is changed to a file number that succeeds the file number recorded on the large-capacity floppy disk last. The image file whose file number has been changed is recorded on the large-capacity floppy disk and an electronic album is generated for each type of image.

Fig. 1

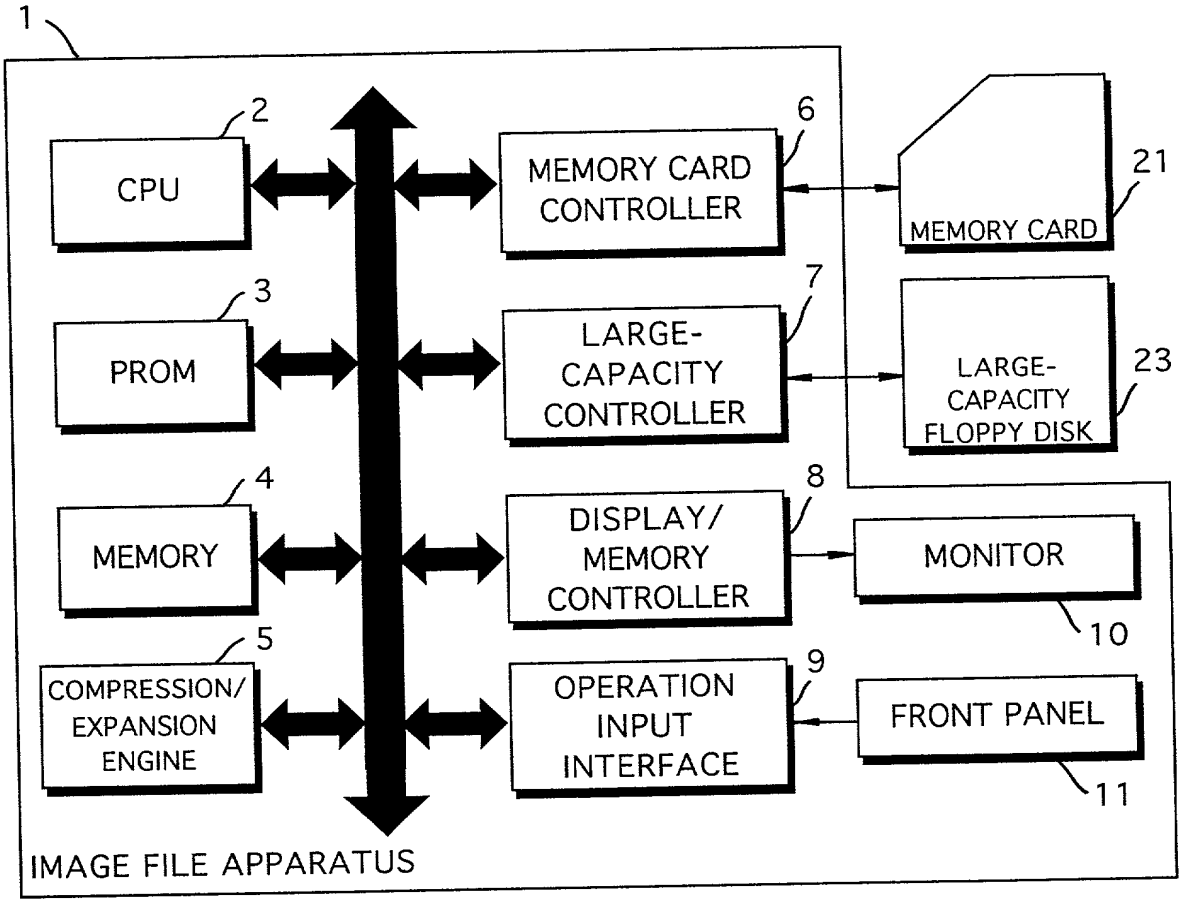

1
2
CPU
3
PROM
4
MEMORY
5
COMPRESSION/
EXPANSION
ENGINE
6
MEMORY CARD
CONTROLLER
7
LARGE-
CAPACITY
CONTROLLER
8
DISPLAY/
MEMORY
CONTROLLER
9
OPERATION
INPUT
INTERFACE
21
MEMORY CARD
23
LARGE-
CAPACITY
FLOPPY DISK
MONITOR
10
FRONT PANEL
11
IMAGE FILE APPARATUS

Fig.2

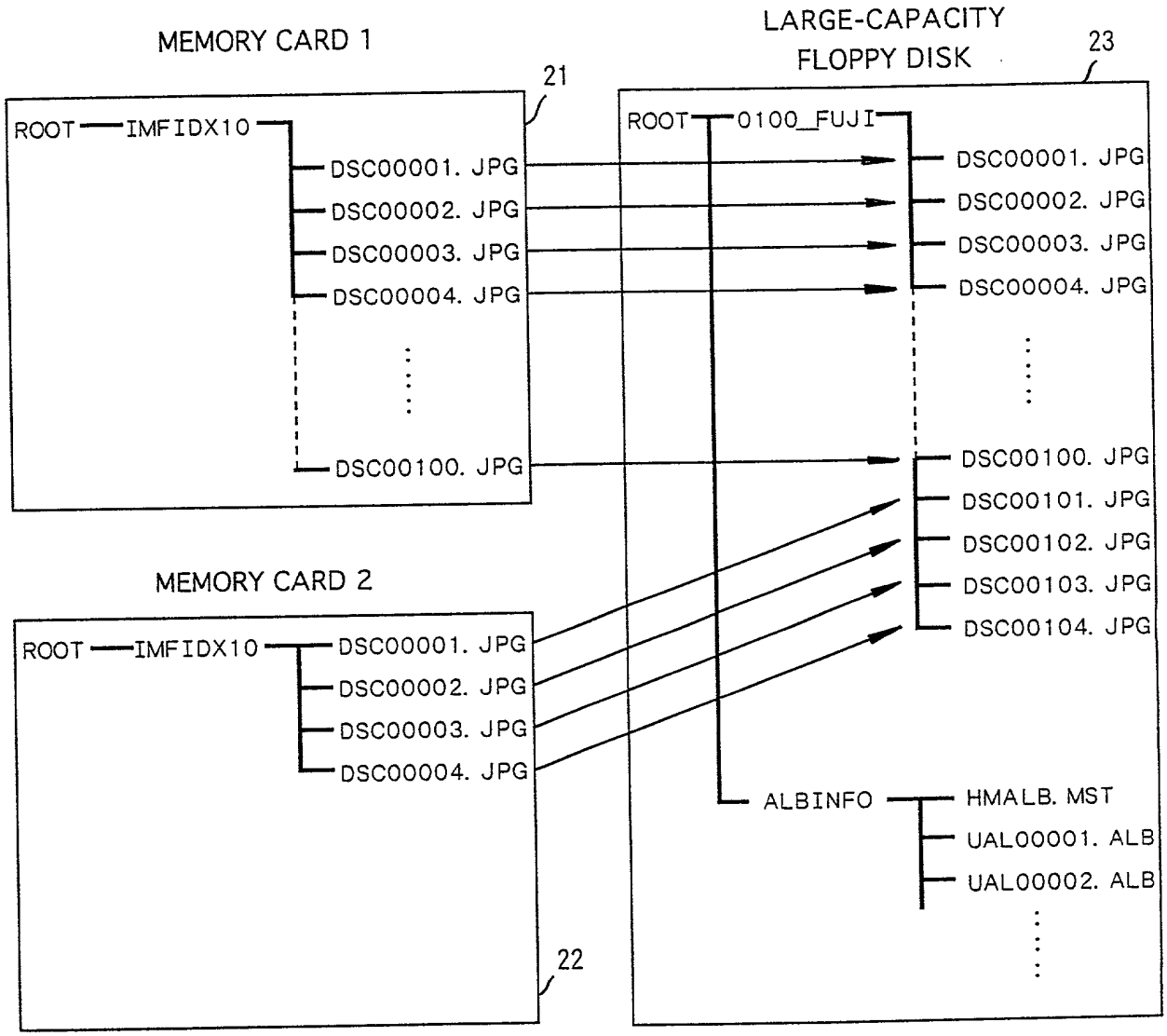

MEMORY CARD 1
21
ROOT
IMFIDX10
DSC00001. JPG
DSC00002. JPG
DSC00003. JPG
DSC00004. JPG
DSC00100. JPG
MEMORY CARD 2
ROOT
IMFIDX10
DSC00001. JPG
DSC00002. JPG
DSC00003. JPG
DSC00004. JPG
22
LARGE-CAPACITY
FLOPPY DISK
23
ROOT
0100_FUJI
DSC00001. JPG
DSC00002. JPG
DSC00003. JPG
DSC00004. JPG
DSC00100. JPG
DSC00101. JPG
DSC00102. JPG
DSC00103. JPG
DSC00104. JPG
ALBINFO
HMALB. MST
UAL00001. ALB
UAL00002. ALB

Fig. 3

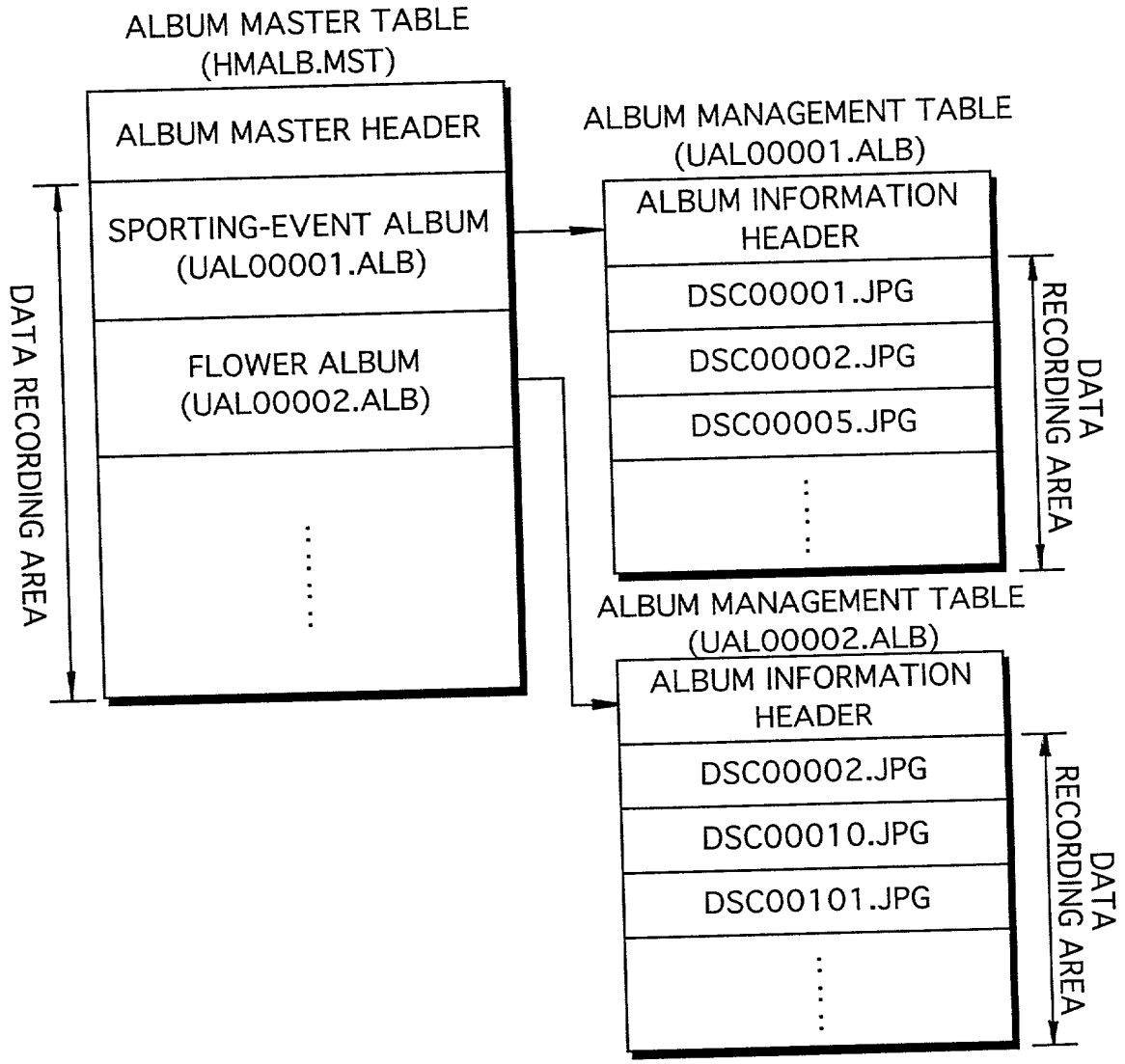

ALBUM MASTER TABLE
(HMALB.MST)
ALBUM MASTER HEADER
SPORTING-EVENT ALBUM
(UAL00001.ALB)
FLOWER ALBUM
(UAL00002.ALB)
DATA RECORDING AREA
ALBUM MANAGEMENT TABLE
(UAL00001.ALB)
ALBUM INFORMATION HEADER
DSC00001.JPG
DSC00002.JPG
DSC00005.JPG
DATA RECORDING AREA
ALBUM MANAGEMENT TABLE
(UAL00002.ALB)
ALBUM INFORMATION HEADER
DSC00002.JPG
DSC00010.JPG
DSC00101.JPG
DATA RECORDING AREA

Fig. 4

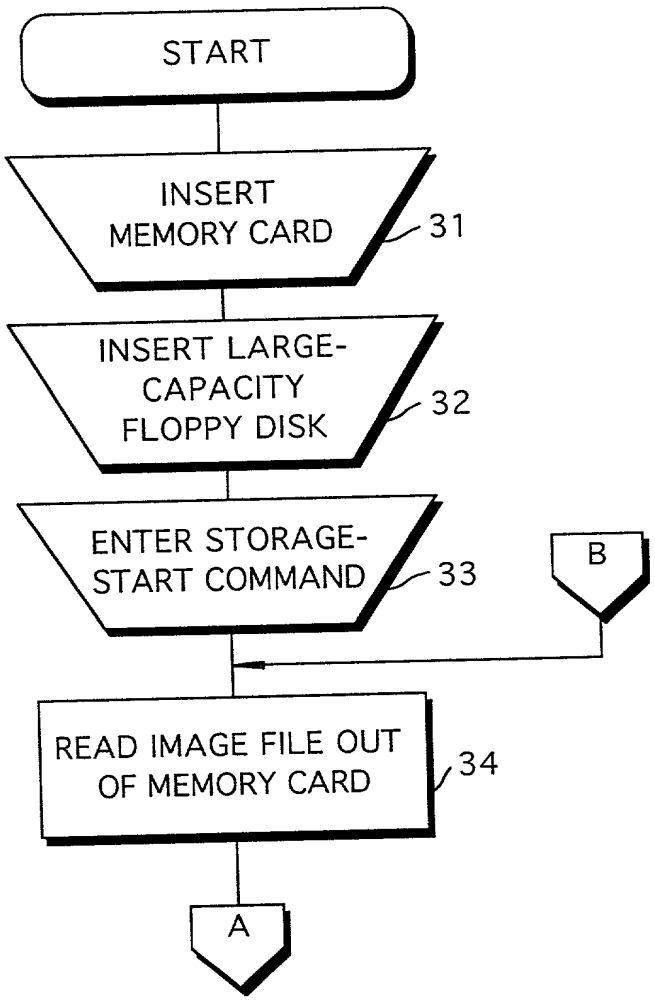

START
INSERT MEMORY CARD
31
INSERT LARGE-CAPACITY FLOPPY DISK
32
ENTER STORAGE-START COMMAND
33
B
READ IMAGE FILE OUT OF MEMORY CARD
34
A

Fig. 5

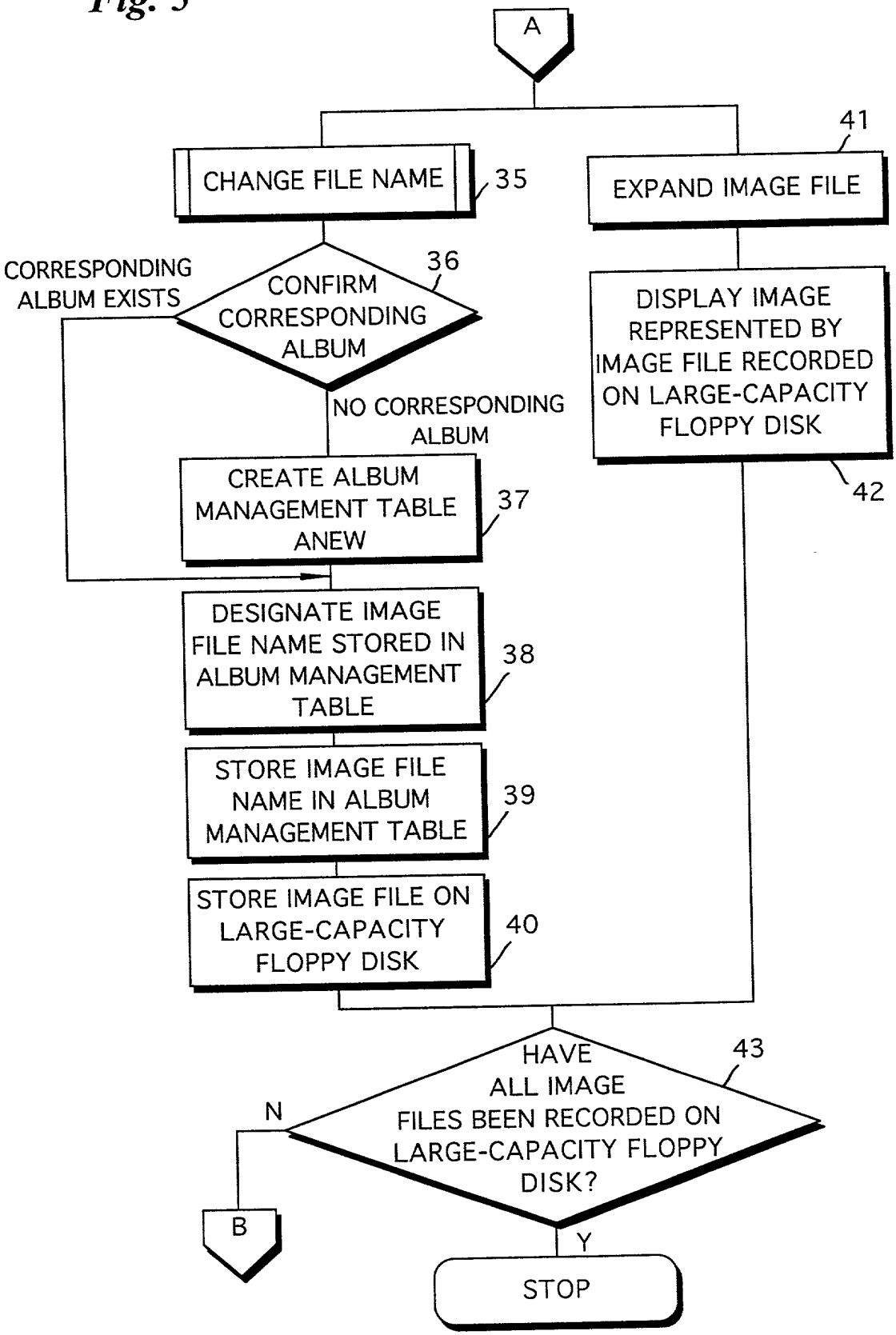
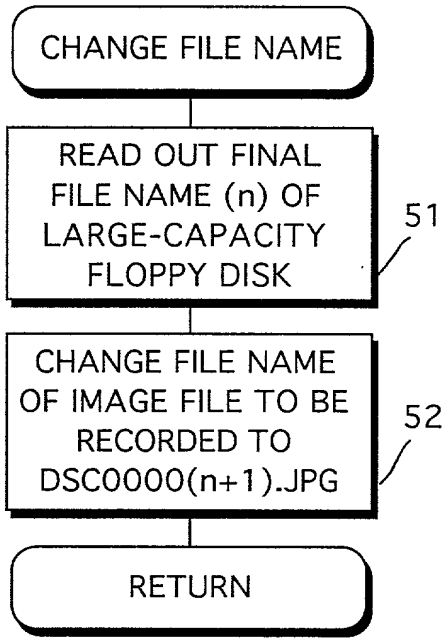

A
CHANGE FILE NAME
35
41
EXPAND IMAGE FILE
CORRESPONDING ALBUM EXISTS
CONFIRM CORRESPONDING ALBUM
36
DISPLAY IMAGE REPRESENTED BY IMAGE FILE RECORDED ON LARGE-CAPACITY FLOPPY DISK
42
NO CORRESPONDING ALBUM
CREATE ALBUM MANAGEMENT TABLE ANEW
37
DESIGNATE IMAGE FILE NAME STORED IN ALBUM MANAGEMENT TABLE
38
STORE IMAGE FILE NAME IN ALBUM MANAGEMENT TABLE
39
STORE IMAGE FILE ON LARGE-CAPACITY FLOPPY DISK
40
HAVE ALL IMAGE FILES BEEN RECORDED ON LARGE-CAPACITY FLOPPY DISK?
43
N
B
Y
STOP

Fig. 6


CHANGE FILE NAME
READ OUT FINAL FILE NAME (n) OF LARGE-CAPACITY FLOPPY DISK
51
CHANGE FILE NAME OF IMAGE FILE TO BE RECORDED TO DSC0000(n+1).JPG
52
RETURN

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905-226P

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COMBINED DECLARATION AND POWER OF ATTORNEY FOR PATENT AND DESIGN APPLICATIONS

As a below named inventor, I hereby declare that: my residence, post office address and citizenship are as stated next to my name; that I verily believe that I am the original, first and sole inventor (if only one inventor is named below) or an original, first and joint inventor (if plural inventors are named below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Insert Title: →

IMAGE FILE APPARATUS AND METHOD

Fill in Appropriate Information — For Use Without Specification Attached: →

the specification of which is attached hereto. If not attached hereto.

the specification was filed on _____ as United States Application Number _____; and amended on _____ (if applicable); and/or the specification was filed on _____ as PCT International Application Number _____; and was amended under PCT Article 19 on _____ (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I do not know and do not believe the same was ever known or used in the United States of America before my or our invention thereof, or patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months (six months for designs) prior to this application, and that no application for patent or inventor's certificate on this invention has been filed in any country foreign to the United States of America prior to this application by me or my legal representatives or assigns, except as follows.

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Insert Priority Information: → (if appropriate)

Prior Foreign Application(s)			Priority Claimed	
11-018021 (Number)	Japan (Country)	01/27/1999 (Month / Day / Year Filed)	☒ Yes	☐ No
_____ (Number)	_____ (Country)	_____ (Month / Day / Year Filed)	☐ Yes	☐ No
_____ (Number)	_____ (Country)	_____ (Month / Day / Year Filed)	☐ Yes	☐ No
_____ (Number)	_____ (Country)	_____ (Month / Day / Year Filed)	☐ Yes	☐ No

Insert Provisional Application(s): → (if any)

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below.

_____ (Application Number) _____ (Filing Date)

_____ (Application Number) _____ (Filing Date)

All Foreign Applications, if any, for any Patent or Inventor's Certificate Filed More than 12 Months (6 Months for Designs) Prior to the Filing Date of This Application:

Insert Requested Information: → (if appropriate)

Country	Application Number	Date of Filing (Month / Day / Year)

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Insert Prior U.S. Application(s): → (if any)

(Application Number)	(Filing Date)	(Status — patented, pending, abandoned)

I hereby appoint the following attorneys to prosecute this application and/or an international application based on this application and to transact all business in the Patent and Trademark Office connected therewith and in connection with the resulting patent based on instructions received from the entity who first sent the application papers to the attorneys identified below, unless the inventor(s) or assignee provides said attorneys with a written notice to the contrary:

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Insert Name of Inventor →
Insert Date This Document is Signed

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* DATE OF SIGNATURE